

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
27 May 2004 (27.05.2004)

PCT

(10) International Publication Number
WO 2004/043931 A1

(51) International Patent Classification⁷: C07D 217/02,
333/54, 277/62, 495/04, 275/04, 217/24, 417/04, A61K
31/472, A61P 25/00

(21) International Application Number:
PCT/US2003/031512

(22) International Filing Date: 24 October 2003 (24.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/424,126 5 November 2002 (05.11.2002) US

(71) Applicant (for all designated States except US): ELI
LILLY AND COMPANY [US/US]; Lilly Corporate
Center, Indianapolis, IN 46285 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): BOULET, Serge,
Louis [CA/US]; 10813 Windemere Boulevard, Fish-
ers, IN 46038 (US). FILLA, Sandra, Ann [US/US];
1542 Arborwoods Drive, Brownsburg, IN 46112 (US).
GALLAGHER, Peter, Thaddeus [GB/GB]; Eli Lilly
and Company Limited, Kingsclere Road, Basingstoke,
Hampshire RG21 2XA (GB). HUDZIAK, Kevin, John
[US/US]; 5944 Magnificent Lane, Indianapolis, IN 46234
(US). JOHANSSON, Anette, Margareta [SE/US];
6350 Brokenhurst Road, Indianapolis, IN 46220 (US).
KARANJAWALA, Rushad, E. [US/US]; 9732 Autumn
Way, Zionsville, IN 46077 (US). MASTERS, John,
Joseph [US/US]; 12047 Flint Stone Court, Fishers, IN
46038 (US). MATASSA, Victor [GB/DE]; Graffinity
Pharmaceuticals, Im Neuenheimer Feld 519, 69120
Heidelberg (DE). MATHES, Brian, Michael [US/US];
5335 Cotton Bay Drive West, Indianapolis, IN 46254
(US). RATHMELL, Richard, Edmund [GB/GB]; Eli
Lilly and Company Limited, Kingsclere Road, Bas-
ingstoke, Hampshire RG21 2XA (GB). WHATTON,

Maria, Ann [GB/GB]; Eli Lilly and Company Limited,
Kingsclere Road, Basingstoke, Hampshire RG21 2XA
(GB). WOLFE, Chad, Nolan [US/US]; 16096 Tenor
Way, Noblesville, IN 46060 (US).

(74) Agents: WELCH, Lawrence, T. et al.; Eli Lilly and Com-
pany, P.O. Box 6288, Indianapolis, IN 46206-6288 (US).

(81) Designated States (national): AE, AG, AL, AM, AT (util-
ity model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,
CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (util-
ity model), DE, DK (utility model), DK, DM, DZ, EC, EE
(utility model), EE, EG, ES, FI (utility model), FI, GB, GD,
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN,
MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU,
SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

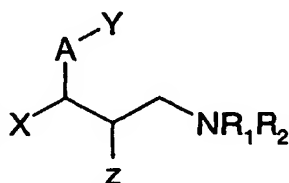
(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted
a patent (Rule 4.17(ii)) for the following designations AE,
AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES,
FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH,
PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO
patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG,
ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU,
TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE,

[Continued on next page]

(54) Title: PROPANAMINE DERIVATIVES AS SEROTONIN AND NOREPINEPHRINE REUPTAKE INHIBITORS



alkyl-S(O)_n- where n is 0, 1 or 2, -CF₃, -CN and -CONH₂; Y is selected from dihydrobenzothienyl, benzothiazolyl, benzoisothiazolyl,
quinolyl, isoquinolyl, naphthyridyl, and thienopyridyl, each of which may be optionally substituted with up to 4 or, where possible,
up to 5 substituents each independently selected from halo, C₁-C₄ alkyl, C₁-C₄ alkoxy, C₁-C₄ alkyl-S(O)_n- where n is 0, 1 or 2, nitro,
acetyl, -CF₃, -SCF₃ and cyano; Z is selected from H, OR₃ or F, wherein R₃ is selected from H, C₁-C₆ alkyl and phenyl C₁-C₆ alkyl;
R₁ and R₂ are each independently H or C₁-C₄ alkyl; and pharmaceutically acceptable salts thereof.